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ISSUES CONCERNING THE INTERNATIONAL ROUND-TABLE ON MINING AND THE ENVIRONMENT, HELD IN BERLIN IN 1991, AND IMPLICATIONS OF ENVIRONMENTAL PROTECTION AND CONSERVATION POLICIES AND STRATEGIES IN THE MINERAL SECTOR

Conclusions and recommendations of the International Round-table on Mining and the Environment and of the United Nations Conference on Environment and Development

Report of the Secretary-General

SUMMARY

This report contains a review of the outcome of the International Round-table on Mining and the Environment held in Berlin in June 1991 and the recommendations adopted at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992. In addition, it briefly touches on environmental issues related to the development of the mineral sector, principally in the developing countries. Mining-related environmental activities of the Department of Economic and Social Development are summarized. The report concludes by indicating some activities that could be undertaken to assist developing countries in achieving sustainable development in the mining sector.

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INTRODUCTION

1. The present report has been prepared in response to Economic and Social Council resolution 1991/87. Pursuant to that resolution, the report includes the conclusions and recommendations of the International Round-table on Mining and the Environment held in Berlin in June 1991. It reviews the impact of environmental and conservation policies on the growth of the mining sector as well as the environmental challenges it faces and future action envisaged. Special consideration is given to the results of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992.

2. The International Round-table was organized jointly by the United Nations Department of Economic and Social Development and the Development Policy Forum of the German Foundation for International Development. Fifty-four participants from the Governments of developing and industrialized countries, environmental agencies, the international mining industry, international organizations and non-governmental organizations were present.

3. The objective of the Round-table was to contribute to the analytical and policy work on environmental issues affecting mining conducted by government bodies, mining companies, non-governmental organizations and development agencies. Developing and industrialized countries shared their expertise and experience with a view to developing a coordinated approach to the many environmental (including sociocultural and health-related) issues facing the industry. The meeting focused attention on ways of introducing environmental guidelines for use by developing country Governments, mining companies and bilateral and multilateral donor agencies in approving mining projects. The resulting Berlin Guidelines on the mining sector (annex I) are regarded as a very useful benchmark for approaching the implementation of Agenda 21 (A/CONF.151/26/Rev.1 (vol. 1)), which is a comprehensive programme of action adopted by Governments at UNCED and a blueprint for action in all areas relating to sustainable development from the present time into the twenty-first century.

I. CONCLUSIONS AND RECOMMENDATIONS OF THE INTERNATIONAL ROUND-TABLE ON MINING AND THE ENVIRONMENT

4. To meet its objective of contributing to the analytical and policy work on environmental issues related to mining, the meeting addressed the concept of long-term sustainable development of the mining industry and the national and international issues confronted by countries at different levels of industrialization. The main focus of the meeting was on the formulation of international principles, guidelines and national regulatory standards in respect of mining, with particular emphasis on developing countries, with a view to initiating a consultative process between the various parties involved, such as the mining industry and government agencies. The meeting reached a compromise on a set of environmental guidelines (see annex I). These guidelines, directed at developing country Governments, mining companies and multilateral and bilateral development agencies, were the most important outcome of the meeting.

5. A need for establishing international guidelines had been recognized as vital by Governments, international development agencies and international mining companies. The meeting discussed the requirement and mechanisms for better coordination and cooperation among and between bilateral and multilateral development agencies in respect of mining and environmental activities in developing countries. Two discussion papers prepared by the United Nations for the meeting made an important contribution to the initiation of such a consultative process.

6. The first paper, entitled "International development agencies, mining and environment in developing countries," provided input to the discussion on:

(a) Identifying how technical cooperation/development assistance should be undertaken to minimize adverse environmental consequences resulting from the exploration for, mining and production of minerals and metals in developing countries;

(b) Identifying needs and mechanisms for better coordination and cooperation among and between bilateral, regional and multilateral development agencies in respect of mining and environment activities in developing countries;

(c) Formulating environmental guidelines for mining in developing countries.

7. In preparing the paper, a number of development agencies had been requested to provide information about their own activities relating to mining and environment in developing countries. Specifically, those development agencies had been invited to furnish information both by way of case studies of specific projects and programmes as well as by way of agency policies, guidelines and practices in respect of mining and environment in developing countries. In addition, a number of environmental issues to be addressed in mining/metallurgical operations had been identified and development agency experience relating to such issues had also been solicited. Finally, the development agencies had been invited to furnish information on past research, analysis and meetings, future work programmes and agency recommendations relating to mining and environment in developing countries. This survey had helped to identify the activities of development agencies relating to mining and the environment in developing countries (objectives, methods, results), as well as to identify successful cases and methods, main obstacles and options for designing environmental projects in the mining sector in developing countries.

8. The second paper, entitled "Towards environmental guidelines on mining in developing countries", constituted a major initiative directed towards establishing specific environmental guidelines relating to different types of mining, the exploitation of specific minerals, and the different technological processes involved in extraction, bonification and processing. The paper drew on responses of the international development agencies, as well as on contributions from mining companies and national and international mining associations on their own policies and practices regarding the environmental aspects of mining. It was on the basis of these responses that draft environmental principles and guidelines had been put forward in the discussion

paper for the consideration of developing country Governments, mining companies and multilateral and bilateral development agencies. Those draft principles and guidelines had then formed the basis for the deliberations of the Working Group on Environmental Guidelines at the International Round-table on Mining and the Environment and had led to the guidelines being adopted by consensus in Berlin; they have come to be known in the mining industry as The Berlin Guidelines.

9. As indicated, the above-mentioned discussion paper had been prepared on the basis of responses received from mining companies. Written responses had been received from 13 companies (one each from Chile, the United Kingdom of Great Britain and Northern Ireland, the Netherlands and Finland; two each from Japan, Canada and Australia; and three from the United States of America). The seven areas in which information had been sought were the following:

(a) Availability of company guidelines on environmental protection;

(b) Importance of environmental protection in company strategy and planning;

(c) Costs of environmental protection for the various types of mining and metallurgical operations;

(d) Organizational set-up within the company for environmental protection;

(e) Competitive impact of different environmental protection standards in various countries;

(f) Special observations with respect to environmental regulations encountered in developing countries;

(g) Possibility of less stringent environmental standards in developing countries as a factor in the choice of where to locate mining and metallurgical operations.

10. The paper analysed the various corporate environmental guidelines and the role of environmental protection in company strategy and planning, and pointed to the difficulties in reporting the costs of environmental protection in mining and metallurgical operations. It also emphasized the importance of corporate organizational set-ups for environmental protection and reflected corporate views on the competitive impact of differing national environmental protection standards. Finally, it highlighted and addressed the following six key issues relevant to negotiations for adopting international principles and guidelines on environmental aspects of mining:

(a) Confidentiality and the right to know: there was repeated reaffirmation that environmental considerations must be taken into account at the earliest possible stage of mineral development activities. There were, however, needs for confidentiality that must be balanced against needs for public disclosure;

(b) Costs of environmental compliance: despite mining company tact on the subject, there was no doubt that environmental costs were real and must be met collectively by mining companies, host Governments, development assistance agencies and consumers in developing countries. Mechanisms must be developed to meet the costs of both long-term pollution and short-term remedial environmental costs;

(c) Impact assessment and management programme: the monitoring and implementation of environmental guidelines were almost as important as the articulation of those guidelines. There were very important problems related to the above two management tools which all interest groups agreed were vital to effective environmental regulation. Serious practical questions existed with respect to the successful conduct of impact assessment and management programmes, such as who did the job, how costs were met and how the credibility of the process and its outcome, as well as participation and accuracy, could be ensured.

(d) Reconciling conflicting national priorities: environmental priorities (especially long-term) might often assume global but not national significance in developing countries faced with immediate concerns with regard to foreign exchange and revenue earning and employment. Development assistance agencies had vital roles to play in reconciling and adjusting such conflict in priorities;

(e) Reconciling conflicting interests: mining in developing countries involved an inherent and basic conflict between Governments (which wished to maximize economic return) and foreign mining companies (which wished to optimize profits). Environmental considerations must not be held hostage to such conflicts. Environmental mediation mechanisms and multilateral and bilateral development assistance agencies both had crucial roles to play in this regard;

(f) Participation by concerned and affected groups: many if not most of the problems arising from health, safety and environmental impacts on affected communities could be averted if significant, effective and early participatory mechanisms could be developed. Often, a foreign mining company became a scapegoat for a host Government which had opted to bypass meaningful local community participation procedures. This was a classic no-win situation which needed to be addressed by policies which did not fear or begrudge participatory processes.

11. The discussion paper underscored that:

(a) It was crucial not only to think in terms of adoption of principles and guidelines regarding the environmental impacts of mining in developing countries, but also to devise management tools and monitoring, implementing and sanctioning mechanisms in respect of such guidelines. Otherwise they would be guidelines honoured more in the breach than in the observance;

(b) International guidelines could only be introduced through an international process. Adoption of international guidelines by the Berlin Round-table, while an important first step, was part of a process that needed to evolve collectively and which would involve, at a minimum:

(i) Continuing consultative and adoptive processes with mining companies/national industry associations; national and international trade unions; national and international environmental consumers, other public interest non-governmental organizations; and governments;

(ii) Adopting the guidelines within the United Nations system of environmental management relating to minerals resource projects.

II. IMPACT OF ENVIRONMENTAL POLICIES ON THE GROWTH OF THE MINING SECTOR

12. In recent years, growing environmental awareness worldwide among Member States and the United Nations has led to equally growing concern that industry generally, including mining, should be committed to land-use planning, mine-site rehabilitation, minimizing environmental pollution, utilizing clean production technology and curbing noise pollution. The enactment of environmental regulations has affected the mining sector and has modified attitudes from affirmative action to one of cautious investment. Recently, some conservation/preservation and anti-mining movements have been so active that pressure groups have been able to recommend to Governments the implementation of stringent regulations that may eventually freeze mining development.

13. The mining industry has responded to the new situation in a number of ways:

(a) It has showed a willingness to work within the framework of new and ever changing Government guidelines and has accepted that environmental protection is an area in which Governments must maintain a central role in implementing environmental regulations. Furthermore, it has become clear that well articulated environmental policies reinforce and enhance development opportunities;

(b) It has provided education on mining and the environment, which has helped to communicate to the public, Governments and educational institutions the important linkages between mining, the environment and the economy;

(c) It has demonstrated the importance of mining in increasing gross national product (GNP) leading to economic growth;

(d) It has contributed and continues to contribute to the development of new enhanced technologies in order to minimize environmental damage while maximizing production efficiency;

(e) Mining corporations are establishing their own mining standards with a view to:

(i) Preparing environmental impact assessments for all stages of mineral development from exploration through metallurgical processing to product use;

(ii) Designing projects to minimize environmental damage and optimize ore recovery;

(iii) Adopting and implementing adequate health and safety standards for mine workers;

(iv) Preparing and implementing mine-site rehabilitation programmes. The mining industry is a world leader in rehabilitation of disturbed lands and is developing waste-recycling technologies as productive activities; and

(v) Preparing and implementing an environmental management programme for post-operational phases of the mine project;

(f) It is facilitating the transfer of sound environmental technologies to developing countries, which will allow the implementation of modern and efficient mining methods. Those technologies should be compatible with both the search for profitable investment and the implementation of long-term environmental management;

(g) It is committed to undertaking environmental audit reviews which enable industry to assess whether the environmental performance at an existing mine is satisfactory. Auditing includes verification of regulatory compliance as well as evaluation of company organization to ensure that there is an adequate level of management control over environmental issues.

III. ENVIRONMENTAL CHALLENGES FACING THE MINING SECTOR AND FUTURE ACTION ENVISAGED

14. The challenge facing the mining sector is to develop and utilize environmentally friendly technology that is acceptable to Governments and meets the social aspirations of the community while reconciling the economic and commercial needs of the industry. This linkage between the social and economic aspects is expected to contribute to increased productivity and profitability of the mining industry. To meet these newly established environmental regulations and policies, the entire production process has been re-evaluated within the mining sector worldwide. Environmental management starts during the planning stage of a project to ensure that environmental management plans are in place at the beginning of a project rather than being added on afterwards. Moreover, in order to sustain development, it is desirable for the mining industry to operate in an environmentally sound manner. An environmentally responsible attitude must be generated at all levels of mining operations and among all persons involved in mining. Senior and middle management at mine sites must be made aware of the financial value of sound environmental quality control practices.

15. Land-use planning requires all potential use of the land to be taken into consideration. This includes traditional land ownership, national parks, forestry, agriculture, mining and tourism. Access to land for exploration and development of mining resources is a prerequisite for the mining industry. "Projects planned and implemented in cooperation with indigenous people can involve fewer adverse impacts and more benefits to local communities. There is

also the greater likelihood that projects will proceed without costly interruptions, provided all parties negotiate in a constructive manner. Such participation can increase the financial returns to developing companies and enhance the social well being of local communities" (see E/CN.4/Sub.2/1992/54). Similarly, capacity-building, training, and employment of the local population (at all levels from mine workers to senior management) in mining projects is desirable in order for local communities close to mining projects to feel connected and fully a part of mineral resource development. This will achieve clear social and economic objectives.

16. Equally important are the commercial benefits of treating mine wastes as a resource and the recycling of mineral products which will minimize the levels of pollution. Examples include the re-treatment of mine tailings for further extraction of precious metals and the use of final tailings material for the manufacture of building aggregate. Treating traditional waste products as a resource must be given proper importance. An alternative to the containment of mine tailings in retention systems warrants investigation. For example, the use of tailings as a resource to manufacture commercially lightweight building and road aggregate requires further research, while the collection of emission gases offers commercial alternatives to the traditional release of the gases to the atmosphere. The design of future mineral projects should take into account the minimization of adverse environmental impacts. This objective should be viewed as sound business policy, since competitive advantage will be increasingly derived from superior environmental performance.

IV. SPECIAL CONSIDERATION OF THE RESULTS OF THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT, WITH PARTICULAR REFERENCE TO AGENDA 21

Background of Agenda 21

17. In 1972, the United Nations convened the Conference on the Human Environment held in Stockholm. This Conference produced a set of principles for ecologically sound management of the planet and inscribed the environment firmly and irrevocably on the world agenda. Discussion took place for the first time, at a global level, about a kind of development that could be both environmentally sustainable and economically progressive. This kind of development would meet present needs without compromising the ability of future generations to meet their needs. Since then, concern has been mounting over the continued deterioration of the environment and lack of adequate measures to rectify such a development. Global environmental deterioration has been a result of unsustainable patterns of certain kinds of consumption and production processes, especially in the industrialized countries, which are responsible for the largest proportion of the current emission of pollutants, including toxic and hazardous wastes.

18. Between 1972 and 1987, following the Stockholm Conference, a series of more specialized United Nations conferences dealt with particular aspects of the environment; they included the United Nations Conference on Desertification (Nairobi, 1977); the United Nations Water Conference (Mar del Plata, 1977); the United Nations Conference on Science and Technology for Development (Vienna, 1979); and the United Nations Conference on New and Renewable Sources of Energy

(Nairobi, 1981). During this period, however, much more remained to be done. It was necessary to integrate, in practical terms, concerns for development within the context of the environment in economic planning and decision-making. Progress was made in specific instances, but overall the environment of the planet deteriorated; ozone depletion, global warming, and other major environmental problems grew more serious.

19. In 1987, the United Nations World Commission on Environment and Development, with the publication of Our Common Future (widely known as the Brundtland Report), recognized the relationship between economic development and environmental impact. This landmark report convincingly documented the need for sustainable development in both industrialized and developing countries. The Brundtland Report also stated that the vastly different conditions under which countries must make the transition to sustainability impose special handicaps on the poor and place special responsibilities on the rich.

20. In December 1989, the United Nations General Assembly resolved to convene a United Nations Conference on Environment and Development (UNCED), which was held in Rio de Janeiro in June 1992. In calling for UNCED, Member States had stressed that poverty and environmental degradation were closely interrelated and that environmental protection in developing countries had to be viewed as an integral part of the development process. They had also stressed the need for effective international cooperation in researching, developing and applying environmentally sound technologies and had recognized that this global effort would require a supportive international economic climate conducive to sustained economic growth and development in all countries.

Agenda 21

21. In response, UNCED formulated an action plan for the 1990s and beyond the twenty-first century, commonly known as Agenda 21 (A/CONF.15126/Rev.1 (Vol. 1)), which would provide the basis for a global partnership for sustainable development and environmental protection throughout an increasingly interdependent world. For this global partnership to be effective, it must be accompanied by new levels of cooperation between all key sectors of society and Government. Agenda 21 is addressed to Governments, the agencies, organizations and programmes of the United Nations system, other intergovernmental and non-governmental organizations, constituency groups and the public at large, which must all be involved in its implementation, and covers a series of themes, each of which reflects an important dimension of the overall strategy for a global transition towards sustainable development.

Efficient use of natural resources

22. One of the major themes of Agenda 21 deals with the efficient use of natural resources and comprises action programmes focusing on the urgency to reverse the destruction of renewable resources and to implement an integrated approach to the planning and management of natural resources (soils, minerals, water and biota). As stated in chapter 10 of Agenda 21, entitled "Integrated approach to the planning and management of land resources", the broad objective is:

"to facilitate allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources. In doing so, environmental, social and economic issues should be taken into consideration. Protected areas, private property rights, the rights of indigenous people and their communities and other local communities and the economic role of women in agriculture and rural development, among other issues, should be taken into account" (para. 10.5).

Wastes

23. The use of natural resources and their production processes necessarily generate waste. There has been an increase in the amount of residues which are not being reintegrated into the ecosystem, causing considerable problems for human health and environmental quality. The volume and complexity of waste generation and its composition have also changed substantially over the years. Reducing waste generation, recycling wastes into productive activities, finding safe ways to dispose of the wastes that remain and dealing with illegal trade in hazardous wastes are all essential to managing chemicals and waste.

24. Agenda 21 makes specific proposals regarding: (a) environmentally sound management of toxic chemicals, including the prevention of illegal international traffic in toxic and dangerous products; (b) environmentally sound management of hazardous wastes, including the prevention of illegal international traffic in hazardous wastes; and (c) environmentally sound management of solid wastes and sewage-related issues. The present report analyses in chapters I and II the issue of hazardous waste in the mining sector.

25. Finally, the Conference of Plenipotentiaries on the Global Convention on the Control of Transboundary Movements of Hazardous Wastes, which was convened in Basel in March 1989, clearly indicated that "part of the transboundary movement of hazardous wastes and other wastes is being carried out in contravention of existing national legislation and relevant international legal instruments, as well as internationally accepted guidelines and principles, to the detriment of the environment and public health of all countries, particularly of developing countries" (resolution 4).

Capacity-building

26. The ability of a country to make the transition to sustainable development is dependent to a large extent on its endogenous institutional and professional capacity. Strengthening national capacity to react and plan on environmental matters is a central element of all Agenda 21 programmes. Support for institutional and normative frameworks for environmental policy formulation and management is essential. Countries must also develop the capacity to assimilate appropriate technologies and tap into global cross-flows of relevant knowledge and information. The corollary is not only sustained domestic commitment by developing countries, but new levels of commitment and support by the international community as a whole.

Environmentally sound technologies

27. Environmentally sound technologies are fundamental to the transition to sustainable development. Pollution abatement and recycling technologies are essential ingredients of sustainable development. The developed countries have over time built up a substantial base of scientific and technological knowledge. This should be shared with the developing world to ensure a sound transition to environmentally sound and sustainable development. At the same time, the indigenous knowledge and cultural heritage of developing countries must be integrated with modern knowledge and technology to ensure a viable transition to more sustainable lifestyles and more responsible use of the Earth's resources.

28. In conclusion, Agenda 21 will be under constant review by the Department of Economic and Social Development and many other units of the United Nations for many years to come. The review already made constitutes the beginning of a long dialogue pursuant to UNCED accomplishments and in relation to their specific impact within the field of mining.

V. ENVIRONMENTAL ASPECTS OF MINERAL DEVELOPMENT ACTIVITIES IN 1991-1992

29. Prime operational functions of the Department of Economic and Social Development are to assist Governments of developing countries, at their request, in managing their mineral resources in an environmentally sound manner. Future activities will take into consideration the Basel Convention, the Berlin Guidelines and the UNCED recommendations.

30. At the operational level, environmental considerations were a major concern of mineral development activities in 1992, which led to the recruitment of an environmental interregional adviser whose expertise would strengthen the programmes which had already been initiated, such as (a) formulating a new project for assistance in Guinea-Bissau for the sound development of a phosphate deposit and the evaluation of additional mineral potential; (b) supervising the development, in the Dominican Republic, of the Pueblo Viejo mine along safe environmental guidelines; (c) undertaking environmental and geotechnical studies in Nepal, Pakistan and Thailand; and (d) launching two organizational workshop activities scheduled for 1993. In addition, advisory services were provided to Governments for the definition of environmental policies and the establishment of mining regulations and technical expertise related to the environment was provided to several countries; including Burkina Faso, Colombia, Chad, Ghana, the Philippines, Sierra Leone, Solomon Islands, Ethiopia, Mozambique, the Niger, United Republic of Tanzania, Namibia and Zambia.

VI. ENVIRONMENTAL ASPECTS OF MINERAL DEVELOPMENT ACTIVITIES PLANNED FOR 1993

31. Similar environmental activities and advisory services will be carried out in 1993 by the Department of Economic and Social Development, in a gradually evolving manner, to help Governments to reshape mining activities as they affect the environment. A few key projects are briefly described below:

(a) In collaboration with the United Nations Environment Programme (UNEP), the Interregional Workshop on Environmental Management at Mining Sites in Developing Countries, scheduled for the third quarter of 1993 in Zambia, aims at strengthening the environmental management capacities of officials in charge of operating and regulating mining operations, with emphasis on environmental impact assessment (EIA) and water pollution control, and gathering data towards the preparation of a comprehensive manual on the environmental management of main mining operations in developing countries;

(b) The Workshop on Environment Management System, scheduled for September 1993 in Namibia in collaboration with the Carl Duisberg Gesselschaft (CDG) of Germany and oriented towards Southern African Development Community (SADC) countries, aims at developing a stronger emphasis on the environmental aspects of mining activities. Participants will learn how to carry out EIA and to apply environmental management guidelines (EMG) when starting and implementing mining projects, as well as the general framework for their practical application. In addition to the above-mentioned training projects, the Department of Economic and Social Development will continue providing institutional building assistance. Several developing countries have requested advisory services for tackling site-specific environmental problems and defining environmental policies in the framework of the general improvement of their investment climate.

VII. CONCLUSIONS

32. As a means of achieving sustainable development of mineral resources, the United Nations is giving consideration to inviting industry, Governments, national communities and non-governmental organizations to be part of the process of policy formulation and review. In many regions, there is scope for a review of the interaction between the mining sector and Governments. The United Nations could act as a facilitator to Member States to discuss the potential for exploration and development of new mining projects and the financial resources available for developing countries. Such initiatives by the United Nations at the international level could help bridge the communications gap between industry and developing country Governments and encourage private industry to invest in developing countries. In 1991 and 1992, the United Nations has been instrumental in facilitating the dialogue between the mining industry and Governments and this role could be further expanded towards activities aiming at:

(a) Developing international environmental awareness as well as a better understanding of the specific limitations and needs of the mineral sector in order to integrate it more fully in the sustainable development process;

(b) Designing and implementing sensible and applicable government policies that are acceptable to all parties;

(c) Preparing a standard environmental assessment framework for all interested Governments, in particular for developing countries, which will include land-use planning, exploration, mining and metallurgical operations, rehabilitation, recycling and waste disposal;

(d) Using, developing and transferring mining and metallurgical technology that reduces environmental degradation;

(e) Improving the social, health and education opportunities of indigenous people in mining areas;

(f) Creating and implementing mining industry employment throughout entire mineral operations;

(g) Encouraging the rehabilitation of formerly mined lands for sustainable, recreational and agricultural pursuits;

(h) Evaluating mineral resources along with rural development to complement and improve sustainable living standards;

(i) Fostering investment in the developing world to increase its chances of success by encouraging Governments to create an investment climate that is hospitable to environmentally sound activities.

Annex I

THE BERLIN GUIDELINES

Worldwide long-term economic development can best be achieved through the pursuit of sustainable development policies comprising a balance of economic, socio-cultural and environmental protection measures. While taking into account global environmental concerns, each country should apply this concept to meet the needs of its environment and economic circumstances.

Sustainable mining requires good environmental stewardship in all activities, from exploration and processing to decommissioning and reclamation. It acknowledges the importance of integrating environmental and economic considerations in the decision-making process and the fact that the mineral deposits are unique in their occurrence. It recognizes the importance of mining to the social, economic and material needs of society, particularly for developing countries, and that minerals, notably metals, offer great potential for the use of future generations through increased recycling programmes.

Sustainable mining under appropriate environmental guidelines is based on interaction between industry, Governments, non-governmental organizations and the public directed towards optimizing economic development while minimizing environmental degradation. The need for such guidelines is recognized by industry, Governments and international agencies. It is also recognized that the political will of Governments, together with the commitment of industry management and of the community, are the essential conditions needed to enforce environmental legislation and, more importantly, to ensure compliance with all applicable laws for the protection of the environment, employees and the public.

Addressed to the mineral sector

Governments, mining companies and the minerals industries should as a minimum:

1. Recognize environmental management as a high priority, notably during the licensing process and through the development and implementation of environmental management systems. These should include early and comprehensive environmental impact assessments, pollution control and other preventive and mitigative measures, monitoring and auditing activities and emergency response procedures;

2. Establish environmental accountability in industry and Government at the highest management and policy-making levels;

3. Encourage employees at all levels to recognize their responsibility for environmental management and ensure that adequate resources, staff and requisite training are available to implement environmental plans;

4. Ensure participation of and dialogue with the affected community and other directly interested parties on the environmental aspects of all phases of mining activities;

5. Adopt best practices to minimize environmental degradation, notably in the absence of specific environmental regulations;

6. Adopt environmentally sound technologies in all phases of mining activities and increase the emphasis on the transfer of appropriate technologies which mitigate environmental impacts, including those from small-scale mining operations;

7. Seek to provide additional funds and innovative financial arrangements to improve environmental performance of existing mining operations;

8. Adopt risk analysis and risk management in the development of regulation and in the design, operation and decommissioning of mining activities, including the handling and disposal of hazardous mining and other wastes;

9. Reinforce the infrastructure, information systems service, training and skills of environmental management in relation to mining activities;

10. Avoid the use of such environmental regulations that act as unnecessary barriers to trade and investment;

11. Recognize the linkages between ecology, socio-cultural conditions and human health and safety, both within the workplace and the natural environment;

12. Explore long-term mining investment by having clear environmental standards with stable and predictable environmental criteria and procedures.

Addressed to development assistance agencies

Multilateral and bilateral assistance agencies have an essential role to play in furthering environmental management, particularly in assisting developing nations with programmes to protect their environment, both nationally and as part of the global environmental system. Accordingly, they should:

1. Accord high priority to the mitigation of environmental degradation associated with mining in developing countries to achieve high environmental performance;

2. Initiate, as an integral part of any exploration and mining project, environmental institutional building programmes. Special support should be given to countries actively working to improve their environmental capabilities;

3. Require that all mining projects supported shall contain a training component that will include specific training on environmental awareness and its application to the mining sector;

4. Support increased research regarding the development of new processes with fewer environmental impacts, including recycling;

5. Support the development of activities that would mitigate adverse effects on the socio-cultural fabric and the ecosystem. To achieve this objective, international agencies should give priority to education and training which increase awareness of these issues and allow the affected communities to participate in decision-making;

6. In supporting mining projects, agencies should also take into account the following:

(a) Rehabilitation of displaced populations;

(b) Environmental history of the country;

(c) Large-scale impact on socio-cultural patterns;

(d) The overall economic balance of the project vis-à-vis its total environmental impact;

(e) The impact on other natural resources and ecologically sensitive areas, such as protected forest lands mangroves, wildlife parks and neighbouring watersheds;

7. Promote conferences and policy research on environmental management practices and technologies, and ensure the dissemination of this information;

8. Support and promote regional cooperative programmes to achieve sustainable development of mineral resources;

9. Adopt environmentally safe methods of mining and processing for existing projects;

10. Increase and coordinate their assistance to developing nations in the field of environmental policies management.

Annex II

STUDIES/PUBLICATIONS

A. Report on transnational corporations and industrial hazards disclosure

The Economic and Social Council, in resolution 1989/25, requested studies on ways developing countries might benefit from the experiences of other countries in their efforts to protect the environment in relation to the activities of industry including transnational corporations. In response to that request, the Department of Economic and Social Development prepared a report entitled "Transnational corporations and industrial hazards disclosure". a/ The report examines the regulatory schemes for the disclosure of environmental and health-risk information in industrialized countries. The report includes four drafts of model legislation for information disclosure that could be enacted in developing countries, covering: (a) plans for the construction of a major industrial facility; (b) the operation of an industrial facility that endangers public health, safety or the environment; (c) the sale or export of products that endanger product users, other persons or the environment; and (d) the management of a workplace that endangers the health and safety of workers and independent contractor personnel. b/

B. Benchmark corporate environmental survey

This survey, c/ undertaken on the basis of Economic and Social Council resolution 1990/71, investigates measures that would encourage and mobilize transnational corporations to protect and enhance the environment in its relationship to development. The survey describes the current state of international corporate environmental management and documents the most advanced corporate environmental practices. The four related reports deal with:

Report 1: atmospheric protection; protection and management of land resources; conservation of biological diversity; environmentally sound management of biotechnology;

Report 2: protection of oceans; protection of fresh water resources; environmentally sound management of toxic wastes and chemicals;

Report 3: legal and institutional matters;

Report 4: findings relating to general environmental management issues.

Notes

a/ Environment Series No. 1, ST/CTC/111 (United Nations publication, Sales No. E.91.II.A.18).

b/ Information disclosure is the centre-piece of the major environmental protection regulations in the United States of America and in the European

Notes (continued)

Community countries. Information disclosure enables government officials to plan safety, regulate industrial activities, control the use of hazardous products and prepare contingency plans for responding to accidents and other harms. Disclosure is also important in educating the worker, product user and community resident to take self-protective measures and to contribute to risk-decision and emergency planning. Disclosure may independently stimulate firms to take voluntary initiatives to reduce risk.

c/ Consolidated Executive Summaries, ST/CTC/SER.C/5, forthcoming United Nations publication.